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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/235,319	01/22/1999	RICHARD M. UBOWSKI	IYENGAR8-10	4856

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EXAMINER

BRINEY III, WALTER F

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 05/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/235,319

Applicant(s)

UBOWSKI ET AL.

Examiner

Walter F. Briney III

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 14-19 and 22-28 is/are rejected.
- 7) ☒ Claim(s) 10-13, 20 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 April 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08 February 2005 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1-9, 14-19 and 22-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (Figure 6) in view of Gritton (US Patent 4,574,166).**

Claim 1 is limited *an echo canceller*. Figure 6 of the application is indicated as a prior art figure. Therein, a conventional cordless handset and base station arrangement are depicted. Each *wireless device* incorporates some type of echo canceller. As seen from the figure, the handset portion includes an *acoustic echo canceller*, while the base portion includes a *hybrid echo canceller*. Clearly, the prior art figure simply illustrates applications for two types of echo cancellers, as such, the applicant's admitted prior art

does not necessarily provide an echo canceller that can be configured as either an acoustic or hybrid echo canceller by way of a *control register*.

It is then apparent that one of ordinary skill in the art at the time of the invention would need to, as the applicant indicates, choose an echo canceller for each situation. As such, Gritton teaches a tandem adaptive filter arrangement. See Abstract. The adaptive filter arrangement is suitably programmed to cancel either *acoustically* coupled *echo* signals or electronically coupled echo signals, also known as network or *hybrid echo*. In general, the system of Gritton allows a plurality of echo canceller modules (101-0) through (101-(N-1)) to be cascaded and selectively updated and output, which allows a substantial increase in calculable echo path length. See column 1, lines 10-24, and column 1, line 65, through column 2, line 24.

In particular, Gritton teaches that modulo N counter (107) of figure 1 controls the activation of each cascaded echo canceller, and is programmed according to the type of echo that is to be cancelled. See column 4, lines 15-36. Thus, the modulo N counter (107) corresponds to a *control register*. As is clearly seen from figure 1, the echo canceller uses the same interface, or common physical connection, whether it operates as an *acoustic* or *hybrid echo canceller*.

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement both the acoustic and hybrid echo cancellers of the applicant's admitted prior art using the echo canceller as taught by Gritton, if for no other reason, because the prior art does not provide any teaching of echo canceller structure or

choice. In addition, the choice to use Gritton to fulfill the needs of the prior art is simply an intended use of the system of Gritton.

Claim 2 is limited to *the echo canceller according to claim 1*, as covered by the applicant's admitted prior art (figure 6) in view of Gritton. In accordance with providing echo cancellation for either an acoustic or hybrid echo, the modulo-N counter (107) is programmed with a value N associated with the typical echo path length of a respective acoustic or hybrid echo. See column 4, lines 27-30. Clearly, the size of N determines the number of echo cancellers in tandem, and the effective *span length*. Therefore, the applicant's admitted prior art (figure 6) in view of Gritton anticipates all limitations of the claim.

Claim 3 is limited to *the echo canceller according to claim 2*, as covered by the applicant's admitted prior art (figure 6) in view of Gritton. The mere fact that programming the counter inherently changes the span length indicates that the *span length* is *operably reconfigurable*. Therefore, the applicant's admitted prior art (figure 6) in view of Gritton anticipates all limitations of the claim.

Claim 4 is limited to *the echo canceller according to claim 1*, as covered by the applicant's admitted prior art (figure 6) in view of Gritton. The counter module (107) is responsive to a clock signal. At each instance of the clock signal, the counter increments its stored count value by a value of one. In turn, one echo canceller (101-i) of the cascaded arrangement shown in figure 1 is effectively enabled to perform tap updates. See column 2, lines 13-16. It is understood that tap updates are affected by the step size used. Disabled taps correspond to step sizes of zero. In this way, the

control register (107) *configures the step-size relating to adaptation* of each echo canceller (101-0) through (101-(N-1)). Therefore, the applicant's admitted prior art (figure 6) in view of Gritton anticipates all limitations of the claim.

Claim 5 is limited to *the echo canceller according to claim 4*, as covered by the applicant's admitted prior art (figure 6) in view of Gritton. Simply, the fact that the counter module (107) is operable to control the adaptation of each echo canceller module (101-0) through (101-(N-1)) indicates that the *step sizes are adapted to be operably reconfigurable*. Therefore, the applicant's admitted prior art (figure 6) in view of Gritton anticipates all limitations of the claim.

Claim 6 is limited to *the echo canceller according to claim 1*, as covered by the applicant's admitted prior art (figure 6) in view of Gritton. As shown in the rejection of claim 4, Gritton teaches controlling the tap update ability of each echo canceller module (101-0) through (101-(N-1)) (i.e. *said control register is adapted to configure an ability to update tap information relating to said echo canceller module*). Therefore, the applicant's admitted prior art (figure 6) in view of Gritton anticipates all limitations of the claim.

Claim 7 is limited to *the echo canceller according to claim 6*, as covered by the applicant's admitted prior art (figure 6) in view of Gritton. Simply, the fact that the counter module (107) is operable to control the adaptation of each echo canceller module (101-0) through (101-(N-1)) indicates that the *ability to update tap information is adapted to be operably reconfigurable*. Therefore, the applicant's admitted prior art (figure 6) in view of Gritton anticipates all limitations of the claim.

Claim 8 is limited to *the echo canceller according to claim 1*, as covered by the applicant's admitted prior art (figure 6) in view of Gritton. As shown in the rejection of claim 4, Gritton teaches controlling the tap update ability of each echo canceller module (101-0) through (101-(N-1)) between full update and disabled update (i.e. *said control register is adapted to select one of a plurality of possible adaptation modes of said echo canceller module*). Therefore, the applicant's admitted prior art (figure 6) in view of Gritton anticipates all limitations of the claim.

Claim 9 is limited to *the echo canceller according to claim 8*, as covered by the applicant's admitted prior art (figure 6) in view of Gritton. Simply, the fact that the counter module (107) is operable to control the adaptation of each echo canceller module (101-0) through (101-(N-1)) indicates that the *selection is operably reconfigurable*. Therefore, the applicant's admitted prior art (figure 6) in view of Gritton anticipates all limitations of the claim.

Claim 14 is limited to *the echo canceller according to claim 1*, as covered by the applicant's admitted prior art (figure 6) in view of Gritton. Because Gritton teaches configuring the echo canceller of figure 1 as either an *acoustic* or *hybrid echo canceller*, it inherently follows that the inputs or any two of a *microphone*, a *telephone line-in*, and a *handset in*. See column 4, lines 15-30. Therefore, the applicant's admitted prior art (figure 6) in view of Gritton anticipates all limitations of the claim.

Claim 23 is limited to *the echo canceller according to claim 1*, as covered by the applicant's admitted prior art (figure 6) in view of Gritton. As shown in the rejection of claim 1, as covered by the applicant's admitted prior art (figure 6) in view of Gritton, it

would have been obvious to incorporate the configurable echo canceller of Gritton into the *handset of a cordless telephone*. Therefore, the applicant's admitted prior art (figure 6) in view of Gritton makes obvious all limitations of the claim.

Claim 24 is limited to *the echo canceller according to claim 1*, as covered by the applicant's admitted prior art (figure 6) in view of Gritton. As shown in the rejection of claim 1, as covered by the applicant's admitted prior art (figure 6) in view of Gritton, it would have been obvious to incorporate the configurable echo canceller of Gritton into the *base unit of a cordless telephone*. Therefore, the applicant's admitted prior art (figure 6) in view of Gritton makes obvious all limitations of the claim.

Claims 15-19, 25 and 26 recite limitations that are essentially the same as those presented in respective claims 1, 2, 4, 6, 8, 23 and 24, as covered by the applicant's admitted prior art in view of Gritton, and are rejected for the same reasons.

Claims 22, 27 and 28 recite limitations that are essentially the same as those presented in respective claims 1, 23 and 24, as covered by the applicant's admitted prior art in view of Gritton, and are rejected for the same reasons.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter:

2. **Claims 10-13, 20 and 21** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 10 is limited to *the echo canceller according to claim 1*, as covered by the applicant's admitted prior art (figure 6) in view of Gritton. Gritton simply does not teach any device or method for toggling between *sub-band center clipping* and *full-band center clipping*, as evidenced by the lack of any center clipping whatsoever. Thus, claim 10 is allowable over the applicant's admitted prior art (figure 6) in view of Gritton.

Claim 11 is dependent on claim 10, and allowable over the applicant's admitted prior art (figure 6) in view of Gritton for at least the same reasons.

Claim 12 is limited to *the echo canceller according to claim 1*, as covered by the applicant's admitted prior art (figure 6) in view of Gritton. Gritton simply does not teach any device or method for toggling between *sub-band echo cancellation* and *full-band echo cancellation*, as evidenced by the lack of any type of sub-band echo cancellation whatsoever. Thus, claim 12 is allowable over Gritton and the applicant's admitted prior art (figure 6) in view of Gritton.

Claim 13 is dependent on claim 12, and allowable over the applicant's admitted prior art (figure 6) in view of Gritton for at least the same reasons.

Claim 20 is essentially the same as claim 10, as covered by the applicant's admitted prior art (figure 6) in view of Gritton. Thus, claim 20 is allowable over the applicant's admitted prior art (figure 6) in view of Gritton.

Claim 21 is essentially the same as claim 12, as covered by the applicant's admitted prior art (figure 6) in view of Gritton. Thus, claim 20 is allowable over the applicant's admitted prior art (figure 6) in view of Gritton.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F. Briney III whose telephone number is 571-272-7513. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SINH TRAN
SENIOR PATENT EXAMINER

WFB
5/3/05